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Fabrication of Inertial Confinement Targets (U)

One of the primary objectives of the National Ignition Facility is to demonstrate fusion ignition and significant thermonuclear burn in the Laboratory. To achieve this goal, the 500 TW, 1.8 MJ, 0.35 μm laser must be delivered to a fusion target consisting of an appropriate ablator material (the "rocket fuel") and a thick (>100 microns) cryogenic layer of deuterium-tritium fuel. These targets will be placed within hohlraum x-ray cavities for indirect drive or directly illuminated by the laser.

To control hydrodynamic instabilities the targets must be fabricated with high precision and have demanding fabrication tolerances for all components of the targets. The origins of the target specifications, the fabrication tolerances and their impact on calculated performance and the present status of target fabrication including cryogenic DT R&D will be presented.

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